The Davis County Master Gardener Association

in association with the

Utah State University Extension Service

Plant Nutrition

Overview

- Plant Nutrient Requirements
- Affect of pH on Nutrient Availability
- Soil Tests
- Types of Fertilizers
- Fertilizer Application

Plant Nutrient Requirements

- Primary Macro Nutrients
  - Carbon
  - Hydrogen
  - Oxygen
  - Nitrogen
  - Phosphorus
  - Potassium
- Secondary Macro Nutrients
  - Calcium
  - Magnesium
  - Sulfur
- Micro Nutrients
  - Iron
  - Boron
  - Etc.

Nitrogen

- Contributes to top growth
- Required to support chlorophyll
- Water soluable, leaches away
- Too much suppresses flowering

Phosphorous

- Contributes to root growth
- Not mobile in the soil, needed at roots
- Contributes to flowering, fruit

Potassium

- Contributes to overall plant health

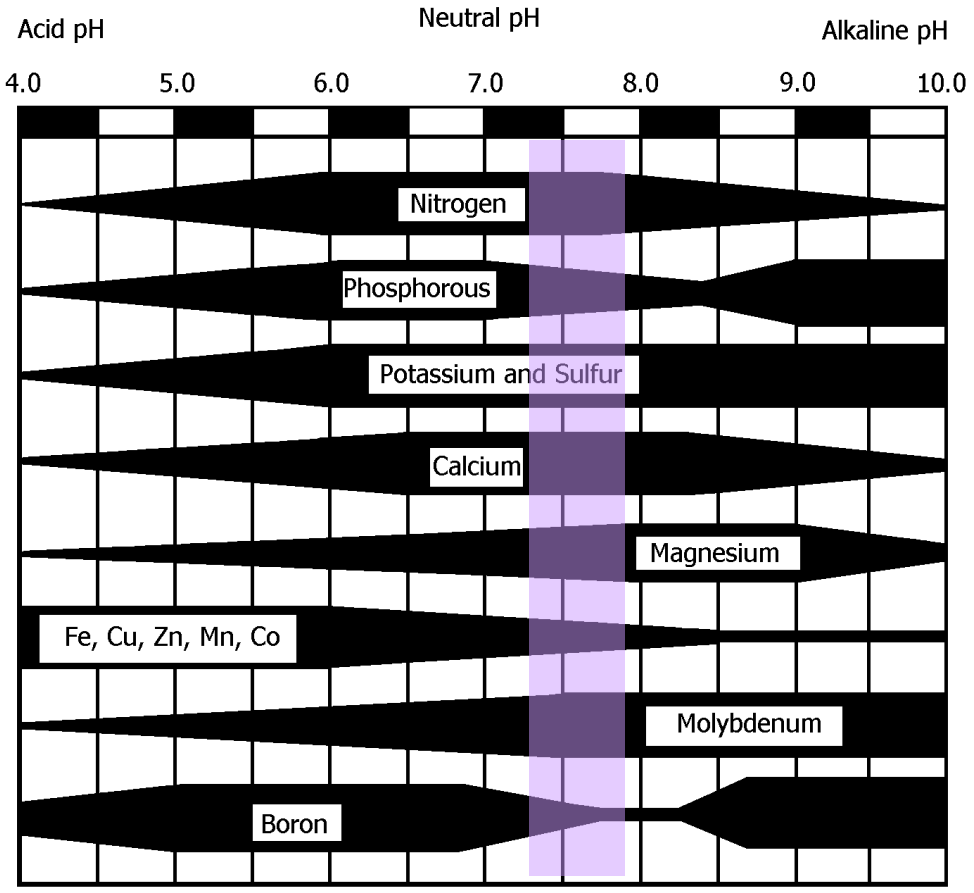
Fertilizer Labels (4-10-8)

- The three numbers represent:
  - % nitrogen (N)
  - % phosphorus (P)
  - % potassium (K)
- 4-10-8 = 4% N, 10% P, 8% K
- 16-16-16 = 16% N, 16% P, 16% K

Types of Fertilizer

- Complete vs. Incomplete
- Specialized
- Slow Release
- Organic
- Green Manures
- Combined With Pesticides

Effect of Soil pH



Soil Tests

- Ribbon test
- Canning jar test
- Over the counter tests
- USU soil testing

Fertilizer Application

- Quantity
- Timing
- Amount
- Methods

How Much N to Apply

Determine the pounds of fertilizer to apply in terms of nitrogen requirements.

Lbs to apply = (Lbs N required / %N) * 100

Label	%N	Lbs N Required	Lbs To Apply
20 (21-0-0)	21	4	19
10 (36-0-0)	36	4	11
20 (6-2-0)	6	4	67

Recommendation for Lawns: 2 lbs N/1000 sq ft/year

When to Fertilize

- Soil type – determine frequency
- Crop type
- Time of year
- During rapid growth

Application Methods

- Broadcast
  - Spread on surface and till or water in
  - Use calibrated rotary or drop spreader
- Banding and Side dressing
  - Apply to soil around plant or in furrow
  - Cover with soil
- Foliar
  - Spray on – quick response, chance of leaf burn

Summary